MEMORANDUM

To: Washington Learns K-12 Advisory Committee

From: Lawrence O. Picus and Allan Odden

RE: Response to Peer Reviews of our Evidence Based Report

Date: August 21, 2006

The purpose of this memo is to provide our initial response to the reviews of our Evidence Based report (Odden, Picus, Fermanich, Mangan and Goetz, 2006) written by Eric Hanushek (2006) and James Smith (2006). Our goal is not to debate each point made by the reviewers, but rather to respond generally to their concerns and recommendations within the context of the goals of Washington Learns.

Our Evidence-Based report was prepared through an extensive and lengthy process that included multiple meetings with both the Washington Learns Steering Committee and the Washington Learns K-12 Advisory Committee. We also held numerous day long professional judgment panels across the state where over 100 educators provided feedback to the recommendations of the model we developed.

We emphasize that in addition to the Evidence-Based report reviewed by Hanushek and Smith, we provided an extensive list of supporting documents that include:

- A successful district approach to school finance adequacy
- A study of districts and schools that have "doubled" student performance over the past five years and the strategies used to produce those improvements
- Recommendations for changing the teacher salary structure to provide base pay increases for increased instructional expertise (rather than experience or units) and annual bonuses for improving student performance
- Recommendations for how schools can make efficiencies in the use of the two most valued educational resources: dollars and time.

4949 Auckland Ave., North Hollywood, CA 91601
818 980-1881, FAX 818 980-1624, eMAIL lpicus@lpicus.com

In addition to the reports summarized above, we developed a detailed financial model that both estimates the resources the Evidence-Based model generates for each school and school district in the state. This model also provides substantial capacity for simulation of alternatives to the funding model, including the ability to simulate various combinations of the recommendations in the Evidence-Based model as well as dropping some elements altogether, if desired.

Although the need for a relatively fast turnaround for the peer reviews precluded reviewers' analyses of the other documents and model we have developed, it is important – in our view – that the Washington Learns K-12 Advisory and Steering Committees consider all of the documents in context as they develop their recommendations.

This memo consists of three sections. The first summarizes the critiques of the two reviewers. The second provides a response to each of those criticisms and when appropriate refers readers to sections of the report or other documentation where those criticisms are addressed. The third section provides some overall conclusions about the reviews and our work.

We would like to emphasize at the beginning that we are strong supporters of the peer review process and that we appreciate the effort expended by the two reviewers in providing their thoughts and recommendations. Throughout our work we have been attentive to the goals of Washington Learns which may best be summarized by the following sentence from the November 2005 Interim Report:

> *The over-arching purpose is to raise educational attainment in Washington through a world-class, learner-focused education system in order to compete globally and thrive locally.* (Washington Learns, 2005).

SUMMARY OF REVIEWS

The Hanushek and Smith reviews raise a number of concerns and offer a number of critiques of the Evidence-Based report. They can be combined into five general areas:

1. Concern over the evidence used to develop our recommendations.

2. Linking the recommendations to improvements in student achievement – with particular concern over the use of effect sizes.

3. Inefficiencies in the operation of school districts and the lack of clear recommendations as to how to make school operations more efficient in the provision of improved student achievement.

4. The need for better data and accountability.

5. The importance of controlled experiments before going to scale with recommendations such as those contained in the Evidence Based Report.

The reviewers also argued that the political system in Washington – the elected Legislature and state officers – are the appropriate place for decisions about resource allocation levels to be made. We agree with this argument on all levels and emphasize at the beginning of our response that it has always been our understanding that the purpose of our work was to provide expert advice not to proscribe policy.

In the next section we address each of the reviewers' concerns.

RESPONSE TO THE REVIEWS

1. The Evidence Used

Both Hanushek and Smith devote considerable time criticizing the evidence base used to develop our recommendations. They express concern with the choice of studies and the methods used in those studies. Unfortunately, neither of them provides examples of alternative studies on which this work could be based – most likely because the research on which we have relied represents the state of the art in educational research today.

As documented in our study, we rely on three levels of evidence or research in developing our recommendations:

- Studies that use experimental, randomized designs – the so called "gold standard" of research studies. Unfortunately, few such studies exist in education today, though they do exist for some of the highest cost and some of the most effective strategies.

- Other peer reviewed studies that have been published in respected journals

- Knowledge of best practice. We feel strongly that the knowledge and experience of our country's best educators should not be ignored in the development of recommended resources for education.

Our report carefully documents the evidence on which we have relied for every recommendation. To be as transparent as possible about the evidence base we use, our report includes an extensive bibliography and detailed documentation as to which research we have relied on for each recommendation. We are as aware as the reviewers of the limitations of much of the research. However the work we cite represents the current state of the art in our field.

More importantly, we believe that reliance on the extant research is a substantial improvement over alternative methods that can be used to estimate school finance adequacy. The cost function approach attempts to estimate adequate funding levels through complex mathematical and statistical operations that are both opaque to the general reader, and offer no real guidance as to how to organize schools. The professional judgment approach (which Dr. Smith has utilized extensively in his own adequacy analyses) relies only on the expressed opinions and desires of educators and, sometimes, other individuals – which although valuable, seems to be an even

weaker source of evidence to use as the basis for recommending adequate educational resource needs.

The third approach to adequacy, the successful district method has, in the past, been subject to the same criticism as the cost function, in that it does not provide guidance as to how resources should be used to improve student learning. Others have argued that it is hard to apply the successful district method to the districts with the most complex educational challenges – particularly large, urban districts. As part of our work for Washington Learns, we conducted a successful district study. This study found that very few Washington districts met the performance standards the state has set, and those that did spent substantially above the level of state provided funding, suggesting that if current performance standards are the goal of a basic education program, then substantial additional state revenues will be needed. However, even that analysis provides no real insight into how schools should be organized to improve student learning.

So, in addition to conducting a "traditional" successful district adequacy study, we added an improvement. As documented in our report *Washington Learns: Successful District Report* (Fermanich, Mangan, Odden, Picus, Gross & Rudo, 2006) we conducted site visits at 31 of the highest performing schools in nine districts that were identified as successful. What we found was the schools in those districts with the largest student achievement gains had implemented a series of research based strategies that were very similar to the recommendations contained in our Evidence-Based report and had succeeded in substantially improving student achievement – the most successful of them doubling performance over the past five years. Although this does not "prove" our methods to be superior to others, it presents strong, empirical evidence in Washington that Evidence-Based resource allocations, such as those we have recommended, have, if used in the ways the successful schools used their resources, the potential to dramatically improve student learning.

Finally, as stated above, we were clear at the beginning that the evidence for strategies to improve student learning varies. But the reviewers are skeptical of the research results we report even when those findings are derived from randomized trails. This leads us to wonder what evidence they would accept. For example, like us, the reviewers refer to the Tennessee STAR randomized study of small class sizes in grades K-3. We report the results straight forwardly. The small classes had a significant impact of 0.25 standard deviation for all students, and twice that for low income and minority students. Further, that study showed the impact of smaller classes lasted over time, producing positive outcomes beyond elementary schools. The study found that as the students from the smaller classes entered middle school and high school their performance was higher than those who were not in smaller classes. Studies have even shown positive impacts after high school. Because of these substantial results, our report recommends the state seek to reduce class sizes in those grades to 15. Of course we expect the policy community to review the report and make their own judicious policy conclusions.

The reviewers argued that we based our findings on only one randomized study, but in fact, we utilized several. In addition to the Tennessee STAR study, our report cites studies that used randomized trials to study the effect of tutoring, and which found large positive effects of that

tutoring on student learning. We also report on randomized trial studies for summer school, which similarly showed large positive effects on student learning.

We accept the research findings. The reviewers do not. They wonder if perhaps larger class sizes could have the same effect, or if it is possible that the effect was mainly in Kindergarten or first grade. They suggest there might even be something else that would have a larger effect, or a similar size effect but with a smaller price tag. We suppose that might be possible, but in keeping with the "gold standard" they agree should be used, additional studies would need to be conducted to test those theories. To date such studies do not exist. The Tennessee STAR study, using a widely accepted randomized experimental design, reached important conclusions. The reluctance of the reviewers to accept even these studies leads us to wonder what research findings they would accept.

Choosing not to act because of theoretical or technical disagreements may be acceptable to the academic community, but our reading of the goals and mission of Washington Learns suggests that bold action is necessary and expected. Our recommendations for action are based on the best available research today. If it is not to be based on findings from such "gold standard" research, upon what basis should decisions be made? Unfortunately, the reviewers are silent on that question. We, however, are comfortable recommending policy options based on the results of randomized trials.

Washington Learns needs solutions today. We think it important to use the evidence that is currently available today to redesign the educational system. We further agree with the reviewers that continual data collection on the impact of education reforms and a strong accountability system are essential to helping districts use all resources effectively and to continue to make improvements in student learning.

2. Linking the Recommendations to Improvements in Student Achievement

Both reviewers critique our discussion of effect sizes, pointing out that we appear to claim that if all the recommendations were implemented the effect would be the sum of the effect sizes and the expected improvement in student achievement would be far beyond what rational individuals might expect.

We never intended the effect size data to be interpreted in such a manner and we made no claim that the effect sizes would be cumulative. Of course we agree with the reviewers that the cumulative effect sizes are implausible. They are simply the effect sizes of the various individual program initiatives. The effect size data were provided to help readers understand the relative potential effects of alternative recommendations and to help decision makers establish priorities for how to allocate scarce resources.

We are as aware as anyone that the resources to fully fund this model in one or two years are not likely to be available. As we have repeatedly stated in both our written work and in testimony before the K-12 Advisory Committee, we would use these data to make decisions regarding which recommendations to implement first. The effect sizes, when combined with the relative cost of each programmatic recommendation, offer powerful insight into the most effective ways

for the state of Washington to proceed. Doing more than that would be a stretch beyond the existing data.

3. The Issue of Efficiency

Both Hanushek and Smith express concern about the efficient use of resources and suggest our report is silent on this topic. We disagree. Moreover, in response to concerns about efficiency expressed by members of the Washington Learns Steering Committee at its July 10th meeting, we prepared two documents showing how allocation of resources using our evidence based model enhances the efficiency of the system.

Efficiency does not mean just doing the same with less, it can also mean improving performance by using extant resources – and possibly additional resources – better. Indeed, our report suggests that schools will need to engage in substantial reallocation of both current and new resources if they are to produce significant improvements in student achievement. The Evidence-Based report also suggests that these efficiencies can best be found in the instructional budgets of school districts and proposes organizational systems that can lead to improved student achievement. This recommendation squares with the findings of extensive research we have conducted over the past decade on school-level resource reallocation.

We realize that in the final analysis, achievement of these efficiencies requires successful implementation of more effective educational strategies by teachers and school administrators. Our recommendations include substantial resources to both train these individuals and to provide continuous support to them as they seek to implement strategies that help students learn.

Both Hanushek and Smith express concern about the inefficiencies of the current system and the recommended system, but neither offers recommendations about how to bring about such efficiencies, nor does their past work offer many insights into what they would recommend if asked, other than to provide "incentives" for schools to do better. Our perspective is that both the Evidence-Based model and a wide variety of within-school practices can lead to improved efficiency in school operations that when combined, produce much higher levels of student performance. In fact, if the efficiencies included in our model are not implemented, the chances that districts and schools will produce higher levels of student achievement with current or new money is low.

Efficiencies in the evidence-based model.

We believe there are several efficiencies built into the evidence-based model itself. First, the model looks at all dollars, not just marginal dollars. That means that the strategies identified in the evidence based funding model are meant to be funded first by dollars currently in the system and second only by additional dollars if needed. It is not simply adding money to the existing status quo, but rather redesigning the entire system – which is what the evidence based model does.

The second way in which the evidence-based model fosters efficiency in schools is by focusing

instruction on the core academic subjects. We believe the state and the evidence-based model give primary attention to the core academic subjects – those that are most often tested – mathematics, science, history and reading/English/language arts, and sometimes foreign language. It is clearly more efficient to focus resources on the subjects on which the state and its economy increasingly rely. As a result, the bulk of the resources in the model are aimed at providing instruction in the core subjects, supporting struggling students to ensure they grasp the content of those academic subjects, and providing teachers the knowledge and skills to meet student needs in learning these important core subjects.

Third are the strategies for struggling students built into the current model. The efficiency aspect of these provisions are to intervene with struggling students quickly and intensely, first via tutoring, and then with extended day help and/or summer schools. The purpose is to enable them to maintain the pace of learning in the regular curriculum and not fall so far behind that they eventually get placed in a special education class. The model does include resources for the students with disabilities who require additional help. The model's overall strategies create new efficiencies on two levels. First it seeks to get struggling students up to speed in the core subjects and back into their regular classroom as quickly as possible, and second it is designed to reduce excess referrals to special education programs that are much more expensive. This will both reduce special education costs and insure that special education programs are focused on children with disabilities, not children who simply are having difficulty meeting academic standards.

The fourth efficiency is the emphasis on professional development in the model. Research from both the private sector and schools shows that in order for organizational (i.e., school) restructuring to work, it needs to be accompanied not only by a new way of doing business, but also by intensive, ongoing training. This is to enable the workers, teachers in the case of education, to deliver the new strategies effectively. To be sure schools don't fall into the trap of continuing to do things in the same way – a concern expressed by both Hanushek and Smith – continued training and support is essential. In fact that training is so important in our minds that we argue the model's resources for professional development, including the instructional coaches, should be one of the top priorities for initial funding.

We think it is clear that the model itself is designed to make school operations more efficient – at least in terms of delivering effective instruction to students. Our field work in successful schools, found even more powerful efficiencies which are discussed next.

Efficiencies in school operations

In the past decade, Washington schools have succeeded in improving student performance in reading and math from having about 20 percent of students scoring at or above proficiency to having about 40 percent score at those levels.

To double student performance once again, boosting the percentage of students scoring at or above proficiency from 40 to 80 percent, will be much more difficult. It will take more complex, professional actions. Further, the goal is to produce these gains not just for reading and mathematics, but also for science and social studies. Doubling performance again means

doubling performance from a much higher base and for more core content areas and grade levels. The "efficiencies" we are concerned about in this process are not waste, fraud and abuse, but setting higher goals for higher performance with extant resources. This requires using current time in ways that boost instructional minutes for core subjects, targeting instruction to the precise learning needs of students, and reallocating some resources to important and high impact strategies such as instructional coaches in schools and extra help for struggling students – real efficiencies in the provision of instruction aimed at improving student learning.

In sum, we agree with the reviewers that extensive efficiencies will be needed in Washington's schools. We also believe that numerous efficiencies are built into the evidence-based model itself and that several others – like those implemented in the successful schools we studied – need to be implemented in all schools. Dramatic improvements in student learning will only happen if all of these efficiencies get put into place across Washington's schools. As described below, we think there is a growing base of support to show that schools using evidence based methods can and do efficiently improve student performance on a regular basis.

4. Need for Better Data and Accountability

Both reviews call for better data collection and stronger accountability systems. We completely agree with the need for both. Where we part ways is that both Smith and Hanushek imply these efforts – better data collection and stronger accountability, combined with "incentives for improved academic performance," will *by themselves* lead to better schools. We believe that is too simplistic. It will take leadership, capacity development and a set of concrete strategies about how to organize schools more effectively in order to have more schools make the kind of boosts in student performance that the schools in the successful schools field work made. Our evidence-based model provides a road map for schools to use as they seek to improve student performance. The accuracy of that road map was reinforced by the results of our field work in Washington, as we describe below. We are confident that if the strategies included in our evidence-based models are implemented properly, they will lead to improved schools.

We were not asked to identify an accountability system. Had we been asked to do so, we would have recommended *very strong* accountability structures. This strategy would have included incentives for schools that increased student performance and consequences for schools and teachers that did not. We also would have proposed more school choice as part of trying to create a more competitive environment.

We were asked to identify a new structure for teacher compensation which we provided to the K-12 Advisory Committee. We proposed a structure that would provide increases in teacher pay on the basis of factors – instructional practice – that are linked to student learning gains, rather than factors that are not so linked (years of experience and non-focused education units and degrees). We also proposed bonuses for actually producing student learning gains. We argued that such a new teacher compensation system is an important aspect of an accountability system that needs to accompany any increase in new funds for schools. This type of teacher compensation would create accountability for teachers for both better instruction and higher levels of student learning. It would also create more accountability for schools to boost student learning, by using all of a schools resources for an instructional program that research suggests will lead to a more effective

instructional program. Our professional judgment is that without increased accountability for teachers and schools, it is unlikely that resources will be used as effectively as possible.

5. Importance of Controlled Experiments

Both Hanushek and Smith argue that before "going to scale" with the recommendations in the Evidence-Based report, it is important to conduct controlled experiments to ascertain whether or not the recommendations will work, both individually and in conjunction with each other. From an academic perspective, we completely agree: controlled experimental research is a positive and important component of good analysis. Furthermore, we – as well as many others – have submitted proposals to national funding agencies to conduct exactly this kind of research. To date, those proposals have not been funded so we don't yet have the answers Smith and Hanushek seek.

However, we do think that the results of our field based studies that were part of the successful district study offer exceptional insight into this issue. Although not a randomized experimental design, our efforts to find schools that had succeeded within the context of Washington's funding system offers profound findings about what works in schools. Those findings are summarized here as a reminder of their importance.

Our case studies of the successful schools conducted as part of the Successful District study provide important evidence into how schools who look at the research organize for learning and at the same time are able to do so through the efficient use of time and other resources. Our findings, which provide support for the Evidence Based model, are described below.

Ambitious Goals

The schools first set ambitious goals. All of the successful schools we studied set new versions of goals that were much higher than their previous goals. For some, the goal actually was to double student performance; for others it was to have 90 percent of their students, including their low income and minority students, achieving at or above the proficiency levels. In the past, such ambitious goals had been considered unattainable. But most of the schools we studied set these ambitious goals, and many achieved them.

Data Based Decision Making

The second thing the schools did was engage in "data-based decision making." This is similar to the process used by many private sector companies engaged in continuous improvement efforts. The purpose is to review the performance of the organization, identify areas where performance does not meet expectations, change the way the organization does its work so the low performance areas improve, and implement a feedback loop for a continuous improvement process.

In the schools we studied, there were two aspects of data based decision making. The first was analysis of student scores on the state test, noting where student performance was unacceptable, and determining how to improve those broad areas of low performance. The second strategy

used more detailed "formative assessments." These are assessments given to students to determine what they know and what they do not know about the specific concepts and ideas included in the curriculum being taught. With the formative assessment profiles for each student, the teacher is able to design instructional practices that not only cover the concept students are to learn, but can tailor the process to the learning status of every individual student in his or her class.

The result is a much more efficient deployment of instructional practice. Teachers don't just teach lessons, but they teach lessons that cover the concept areas in the district content standards and state test, and are specifically tailored to the learning status of the students in their classroom. The result is more effective teaching and much higher levels of student learning – without any more time or money, just smarter approaches to deploying instruction

Curriculum Revision

The third step the successful schools took to dramatically improve student learning was to revise the curriculum. The most successful schools in our study realized their old curriculum program was not up to the task, and after a review of research based programs, selected entirely new curriculum programs. Many of these new programs focused on problem solving and application – the new objectives for all core content areas. Moreover, they made sure that the new curriculum covered all the "holes" in their old curriculum that emerged in their "macro" analysis of their students' state test score performance. These successful schools and districts didn't do better by repeating previously ineffective strategies; they employed different strategies, replacing the existing curriculum with new and better materials.

Effective Use of Instructional Time

Fourth, the schools made more effective uses of instructional time during the regular school day and in doing so expanded the time for instruction in the core content areas. Most elementary schools:

- Created a 90 minute block to teach reading and writing every day
- Created at least a 60 minute block for mathematics and pledged that there would be no administrative interruptions of this mathematics time.

These strategies extended the time used for instruction for reading and math AND they were all done at no additional cost; they represent a way to reorganize the school's use of one of its most important instructional resource – time. The result was a much more effective and efficient use of the six hours of instruction available in the average school day. In addition, many of the schools went even further in reorganizing the way the school provided instruction, focusing on research based strategies that have been shown to be more effective with students. These schools created:

- "Double" reading and math periods for some struggling students so they would get a double dose of reading or math instruction during the normal school day.

- Multi-age classrooms and ability grouping especially at the elementary level. A process that allows the teacher to provide more customized instruction and thus extends instructional time. With formative testing occurring during the year, the composition of the groups changed periodically so this was not a tracking system but it was a more efficient way to provide more tailored instruction.

- Block schedules in secondary schools that allowed teachers to have students for 90 minute periods that provided the additional time needed to have students engage in critical thinking and problem solving, and application levels.

- Small classes of 15 for the 90 minute reading period by having everyone in the school teach reading during this time – all core teachers, art, music and PE teachers, the librarian, etc. The result was a no cost way to have small class sizes for the most important subject – reading. Students needing the most help received instruction from reading specialists during this time.

Reallocation of Resources

In addition, and usually through the reallocation of resources, they provided even more additional time for some struggling students by giving them:

- One-to-one, one-to-three, one-to-five, or other small group tutoring. In a few instances the tutoring was provided by a licensed teacher although in most cases the tutoring was provided by trained and supervised paraprofessionals.

- Before or after school tutoring.

- Summer school programs.

All of these extended learning opportunities are recommendations contained in the Evidence-Based model.

More Effective Professional Development

Finally, the successful schools bolstered these multiple initiatives by vastly expanding professional development for teachers to insure that they had the skills needed to implement all of the above strategies with greater expertise and thus greater effectiveness. The schools provided more days of training, either by paying teachers for training during the summer, or by hiring substitutes to release the teachers for training during the regular school year. They had teachers use time during their regular "planning and preparation" periods for "collaborative work" with other teachers. Often this time included micro-formative assessment and data based decision making. In some cases the districts used even more ambitious resource reallocation strategies to place full time instructional coaches in schools – primarily reading and math coaches. This resource is needed to insure that the training provided to each teacher actually results in changes in their classroom practice.

Summary

The successful schools all implemented multiple strategies that increased the efficiency and effectiveness of their operations, their use of time, and the use of the dollars that were available to them. In summary, they:

- Set more ambitious goals and sought to produce more student achievement than previously thought possible.

- Engaged in "macro" and "micro" data based decision-making, using both state test and local formative assessment results to tailor their instruction to the learning levels and needs of each individual student in their classrooms.

- Adopted new curriculum programs that covered all the core concepts in the state standards and the state tests, and included strategies for teaching students higher order thinking skills, problem solving and application levels.

- Made better use of time during the regular school day by increasing the minutes of instruction in reading, writing and mathematics.

- Made even more effective use of that time by reorganizing the ways instruction was provided in multi-age classrooms and through block schedules; both are strategies that research shows produce higher levels of student learning.

- Provided more extended learning opportunities through tutoring, extended day and summer school programs, which were funded through resource reallocation.

- Created a more highly trained corps of teachers through vast expansion of professional development, and by reallocating resources to pay teachers for engaging in training. In addition the districts provided instructional coaches in schools to help teachers embed the new practices into their ongoing repertoire.

This shows that there is a research and evidence base in Washington about what to do to produce substantial improvements in student learning. The successful schools we studied implemented nearly all of these strategies. Other schools have used programs such as Washington's Reading First to achieve similar success. If these processes were utilized by all schools, we think most would find ways to use their resources more effectively (and thus efficiently) to improve student performance.

One important finding from this work is that the districts and schools we studied indicated they had exhausted their ability to reallocate resources to provide more of these costly but also highly effective strategies identified above, and were not able to use similar strategies beyond reading and/or math. Those resources are needed for science and social studies, and similar resources are needed in middle and high schools as well.

While our findings don't match the standard of a "controlled experiment." They do show that using the research based strategies described in our Evidence-Based report, schools have efficiently succeeded in making dramatic increases in student performance. That leaves Washington Learns and state policy makers in the position of deciding if they want to conduct more experiments, or move forward more boldly with strategies that their own schools have shown can and do work when implemented carefully, thoughtfully and with adequate time to measure results. This approach seems to us to answer both the need for improved student learning and for the efficient operation of schools.

That said, Smith, and to a lesser extent Hanushek, also recognize that the appropriate place for decisions about the design and funding of schools is the political environment, not a consultant's report. Again we agree. The Washington Learns Interim Report and the legislation establishing Washington Learns both appear to call for dramatic and speedy improvements to the state's educational system – something that would be difficult if it had to first be preceded by years of experimental studies. Hence we believe that reliance on extant research represents an appropriate approach to extend the process of dramatically improving student performance, and to estimate the kinds of additional resources that might be needed. In fact we are more confident of that now than we were when this study began – due in large part to the findings of the successful district study which showed that schools that are succeeding are first reading the research and then restructuring their schools based largely on that research. To a significant extent, the strategies they implement closely paralleled the recommendations in the Evidence-Based report and show that when implemented, these strategies can and do lead to dramatic improvements in student learning.

Washington will need to decide which of the effective strategies can be funded with current state resources, and which could be funded with additional state funds and the time period over which those funds should be raised. They will also want to determine what other accountability, leadership and capacity development initiatives are needed in order to boost student performance to desired levels, and what initiatives should be subject to experimentation and research before being implemented across the state.

CONCLUSIONS

Washington wants to launch a strategy to dramatically improve the performance of its public school students – to double student performance once again. The goal is ambitious. We believe it is possible to make great strides towards that goal and eventually achieve it. If Washington is to thrive in the emerging knowledge-based economy nothing less is acceptable.

To attain that goal, schools and districts need a comprehensive educational strategy. They need to restructure and redesign themselves to provide more intensive and focused instructional services that will boost the academic learning of all students. Our field research in schools that have doubled student performance over the past five years offers an outline of what it will take for all schools to attain this objective. The recommended educational strategies in the evidence-based model provide the resources for all schools to implement similarly effective strategies in all core academic subjects – mathematics, science, history, reading, writing and foreign language – and at all education levels – elementary, middle and high school.

We argue that some version of all the strategies in the evidence based model is needed over time to reach the substantial performance goals established by Washington. Evidence for this expectation comes not only from existing research but also from our studies of Washington schools and districts that have doubled student performance. They doubled performance using strategies that included:

- Adopting a new curriculum
- Restructuring how they provided instruction
- Providing large amounts of new professional development, in some instances with instructional coaches
- Offering a series of extra help strategies for struggling students, strategies that ranged from double periods, to tutoring, to extended days and summer school.
- Some reduced class sizes, but usually just for reading and only in the early grades.

What we also found is that the schools that were only able to implement these strategies in some curriculum areas, not all of them, suggesting additional resources are needed. We think the priority for those additional resources should be professional development and the extra help strategies. We make this recommendation because the research shows they have the largest effect sizes, and appear to be the most cost effective options.

We would bolster this with a series of accountability initiatives, including a teacher compensation structure that based pay increases for teachers on the factor that boosts student learning – instructional performance, and that also provides bonuses for actually improving student performance.

Finally, the ambitious goals Washington has set for its public schools can be met, but it will very likely take more resources than the state currently provides. As stated at the beginning, no Washington district currently produces the level of performance desired, those few that meet goals set for the past and the upcoming school years all spend substantially above what the state now provides. How Washington wants to phase in new funding still needs to be determined through the political process. But we believe all of our studies and recommendations, of which the evidence-based model is the core, provide the state's decision makers with the best possible information to help them take the next set of important steps to create a *world-class, learner-focused education system in order to compete globally and thrive locally.*

REFERENCES

Fermanich, M., Mangan, M., Odden, A., Picus, L.O., Gross, B., and Rudo, Z. (2006). *Washington Learns: Successful District Report*. North Hollywood, CA: Lawrence O. Picus and Associates. July 18, 2006. Mimeo.

Hanushek, E.A. (2006). *Is the Evidence-Based Approach a Good Guide to School Finance Policy?* Palo Alto, CA: Stanford University. August. Mimeo.

Odden, A., Picus, L.O. Fermanich, M., Mangan, M. and Goetz, M. (2006). *An Evidence Based Approach to School Finance Adequacy in Washington.* North Hollywood, CA: Lawrence O. Picus and Associates. July 28, 2006. Mimeo.

Smith, J.R. (2006). *Review and Critique of "An Evidence Based Approach to School Finance Adequacy in Washington"* Draft dated June 28, 2006. Davis, CA: Management Analysis & Planning, Inc. July 31, 2006. Mimeo.

Washington Learns. (2005). *Washington Learns: 2005 Interim Report*. Olympia, WA: Washington Learns. http://www.washingtonlearns.wa.gov/report/Interim2005_report.pdf